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Spionidae (Annelida, Polychaeta) from Japan  
V. The Genera *Streblospio* and *Dispio*

By

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**Abstract** Three species of spionids, a new subspecies *Streblospio benedicti japonica*, a new species *Dispio oculata* and *D. uncinata* HARTMAN, are described from Japanese waters. Species of *Streblospio* and *Dispio* are reported for the first time from the Japanese area.

During the course of a study on Japanese spionids, three species belonging to the genera *Streblospio* and *Dispio* were recorded. These genera have not been previously reported from Japanese waters. A new subspecies of *Streblospio* and a new species of *Dispio* are described. *Dispio uncinata* is reported for the first time from the Asian area. The collection localities mentioned in the text are shown in Fig. 1. The bulk of the collection, including type specimens, is deposited in the National Science Museum, Tokyo.

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Genus *Streblospio* WEBSTER, 1879

**Diagnosis.** Prostomium anteriorly rounded, extending to setiger 1; with small nuchal tentacle posterior to prostomium. Peristomium forming large wings. Branchiae 1 pair, on setiger 1. Setiger 2 with prominent transverse dorsal fold forming by notopodial lamellae. Noto- and neuropodial lamellae low, rounded thereafter. Notoetae capillaries throughout; neuroetae include capillaries, multidentate hooded hooks and ventral sabre setae. Pygidium with ventral lappets, lacking cirri.

*Streblospio benedicti japonica* subsp. nov.

(Fig. 2 a–1)

**Material examined.** Yatsu tidelands, Chiba Prefecture (holotype and 6 paratypes), XI–1983.

**Description.** Holotype largest complete individual, with 48 setigers measuring 7 mm in length and about 0.3 mm in width including parapodia. Body slender, subcylindrical, colorless in alcohol.

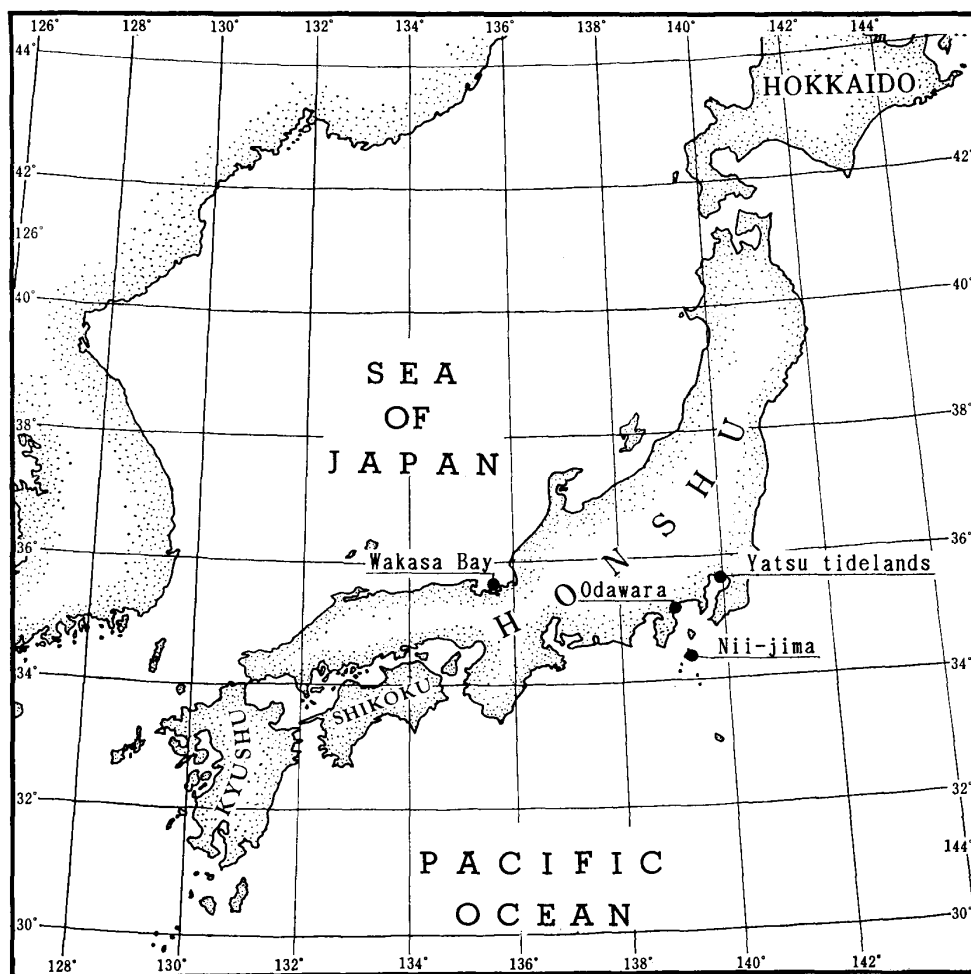


Fig. 1. Map of Japan, showing localities mentioned in the text.

Prostomium anteriorly rounded, extending posteriorly to anterior margin of setiger 1; two pairs of small eyes present, all arranged in crescent; small nuchal tentacle present posterior to caruncle (Fig. 2 a). Peristomium surrounding posterior half of prostomium, fused completely with setiger 1 (Fig. 2 a-c).

Branchiae present on setiger 1, inserted just posterior to prostomium, with membranous ripple (Fig. 2 a-c).

Parapodia of setiger 1 with neuropodial postsetal lamellae only; notopodial lamellae lacking but 1-2 long notosetae present (Fig. 2 b). Setiger 2 with prominent transverse dorsal fold formed by fusion of notopodial lamellae (Fig. 2 a, b, d); following noto- and neuropodial postsetal lamellae becoming rounded (Fig. 2 e), lower (Fig. 2 f), highly reduced in posterior setigers (Fig. 2 g).

Anterior noto- and neuropodial setae all capillaries; notopodial setae (Fig. 2 h) lightly granulated, thicker than those of neuropodial setae (Fig. 2 i). Ventral sabre setae from setiger 3 on all specimens, lightly granulated, lacking sheath (Fig. 2 j).

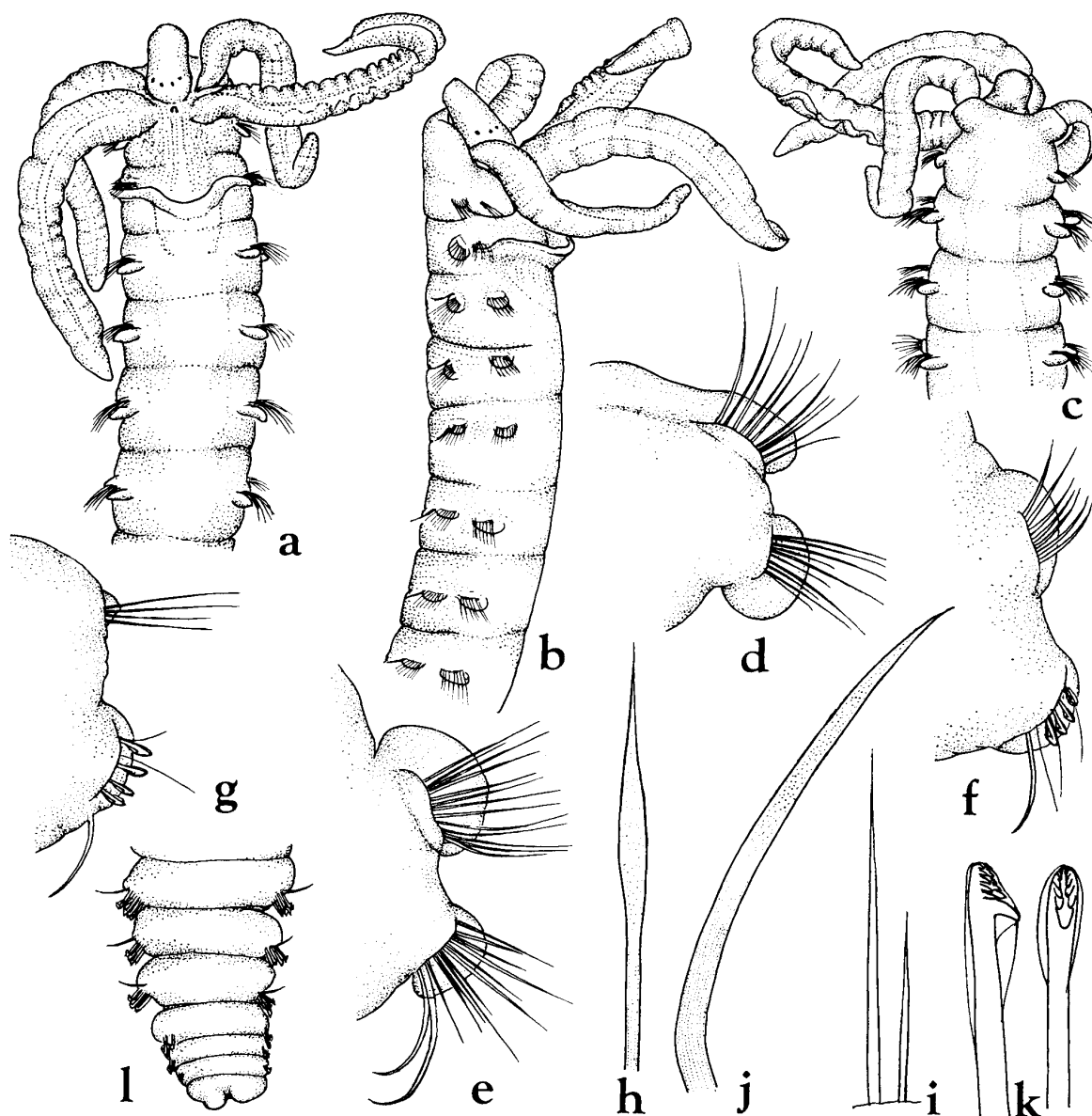


Fig. 2. *Streblospio benedicti japonica* subsp. nov. — a, Anterior end, dorsal view,  $\times 52$ ; b, same, lateral view,  $\times 52$ ; c, same, ventral view,  $\times 52$ ; d, setiger 2, anterior view,  $\times 140$ ; e, setiger 3, anterior view,  $\times 140$ ; f, setiger 20, anterior view,  $\times 140$ ; g, posterior setiger, anterior view,  $\times 140$ ; h, notopodial seta from setiger 2,  $\times 400$ ; i, neuropodial setae from setiger 2,  $\times 400$ ; j, ventral sabre seta,  $\times 655$ ; k, hooded hooks,  $\times 1020$ ; l, posterior end, ventral view,  $\times 100$ .

Neuropodial hooded hooks from setiger 7, numbering 5–6 per fascicle; hooks with 5 pairs of small teeth above main tooth and small secondary hood (Fig. 2 k).

Pygidium with 2 inconspicuous ventral lappets (Fig. 21).

*Remarks.* *Streblospio benedicti japonica* is closely allied to the stem, *S. benedicti* WEBSTER, 1879 from Eastern United States. However, the new subspecies may be

distinguished from the stem in the first appearance of the ventral sabre setae on setiger 3 rather than on setiger 6–7, and also kooks have 5 pairs of small teeth rather than 3–4 pairs in North American specimens.

*Type-series.* Holotype, NSMT-Pol. H 322; 6 paratypes, NSMT-Pol. P 323.

*Distribution.* Japan; tidelands.

### Genus *Dispio* HARTMAN, 1951

*Diagnosis.* Prostomium fusiform, anteriorly pointed, with narrow caruncle posteriorly; peristomium forming low hood surrounding prostomium. Eyes present or absent. Anterior parapodial lamellae serrated or entire. Branchiae present from setiger 1, completely or partly fused with notopodial lamellae. With or without accessory branchiae on some notopodia. Notopodial setae all capillaries. Neuropodial setae include capillaries, stout hooded hooks and sabre setae. Some capillaries and sabre setae with heavily reticulated and granular shafts. Pygidium with midventral flap and prominent anal cirri.

### Key to Japanese Species of *Dispio*

1. Branchiae completely fused to notopodial postsetal lamellae anteriorly but free posteriorly; without accessory branchiae; setiger 1 bearing short notopodial setae; first notopodial postsetal lamellae with entire margin.....*Dispio oculata* sp. nov.
- 1'. Branchiae fused basally to notopodial postsetal lamellae, tips free throughout; with accessory branchiae; setiger 1 bearing very long notopodial setae; first notopodial postsetal lamellae serrated, forming many digitiform lobes....*D. uncinata* HARTMAN

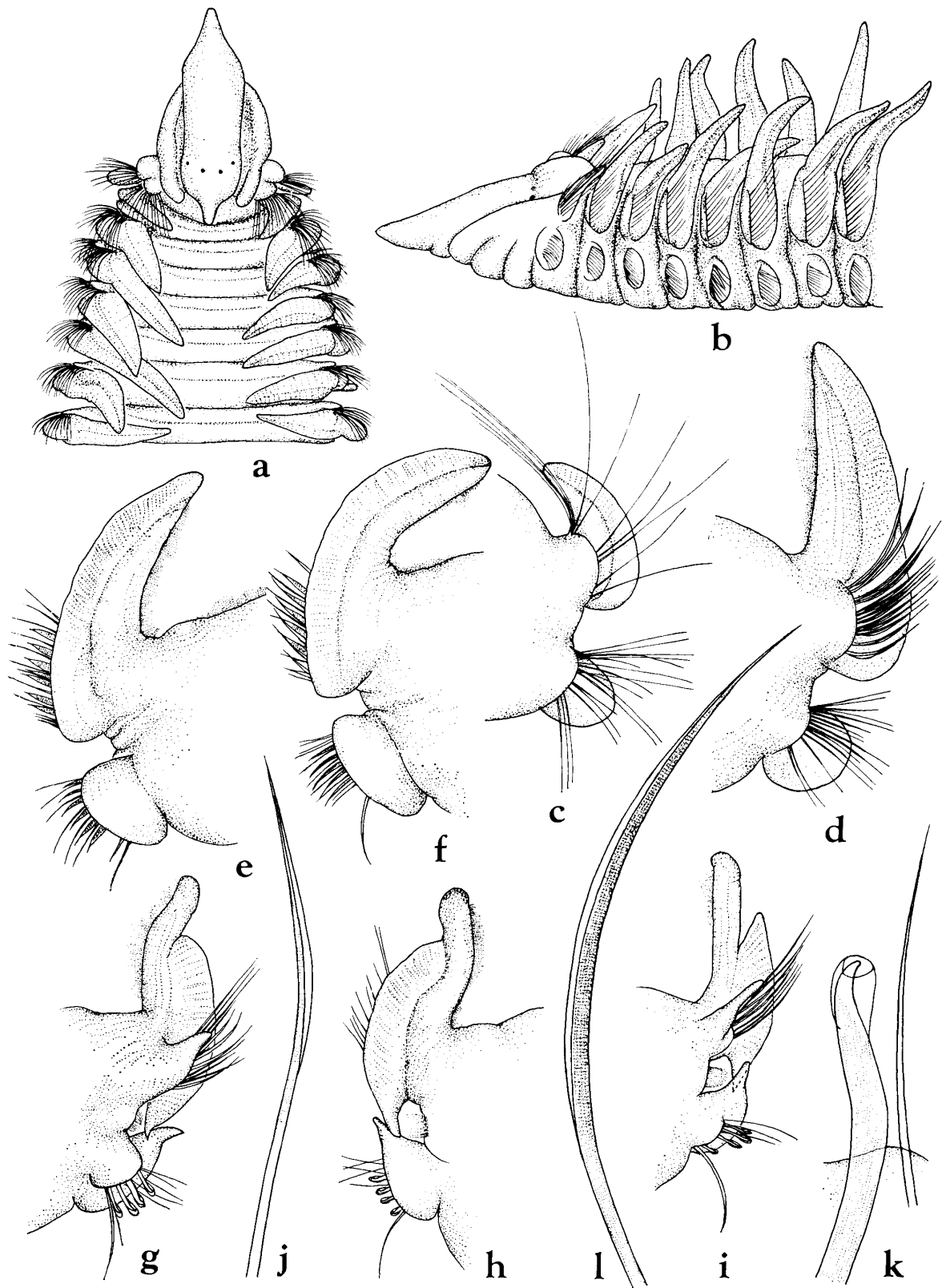
### *Dispio oculata* sp. nov.

(Fig. 3 a–l)

*Material examined.* Off Yura River, Wakasa Bay, in 5 m (holotype and 5 paratypes), V-1976, coll. I. HAYASHI.

*Description.* All specimens posteriorly incomplete; holotype with 62 setigers, measuring 14 mm in length and 1.5 mm in width including parapodia. Body slender, subcylindrical, colorless in alcohol.

Fig. 3. *Dispio oculata* sp. nov. — a, Anterior end, dorsal view, palps removed,  $\times 40$ ; b, same, lateral view,  $\times 40$ ; c, setiger 1, anterior view,  $\times 88$ ; d, setiger 2, anterior view,  $\times 88$ ; e, setiger 10, posterior view,  $\times 58$ ; f, setiger 20, posterior view,  $\times 58$ ; g, setiger 40, anterior view,  $\times 58$ ; h, same, posterior view,  $\times 58$ ; i, setiger 60, anterior view,  $\times 58$ ; j, notopodial seta,  $\times 353$ ; k, hooded hook and capillary seta of setiger 40,  $\times 353$ ; l, ventral sabre seta of setiger 40,  $\times 353$ .



Prostomium elongate, sharply pointed anteriorly, tapering posteriorly as blunt caruncle extending to posterior margin of setiger 1; occipital tentacle absent; two pairs of small eyes present, all form crescent (Fig. 3 a). Peristomium dorsally fused with setiger 1, forming moderate lateral wings (Fig. 3 a, b).

Setiger 1 with slender notopodial lamellae and rounded neuropodial lamellae; notopodial lamellae about half as large as those of subsequent setigers; branchiae present from setiger 1, completely fused with notopodial postsetal lamellae (Fig. 3 c). Setiger 2 well developed, with long, tapered notopodial lamellae with obtuse tips and rounded neuropodial lamellae; branchiae also well developed, completely fused to lamellae (Fig. 3 d). Subsequent notopodial postsetal lamellae with rounded margins, completely fused with branchiae, both elements forming strap-like structure; neuropodial postsetal lamellae entire, rounded (Fig. 3 e, f). Branchial tips becoming free from notopodial postsetal lamellae at setigers 36–38; distal tips club-shaped, granulated (Fig. 3 g, h). Accessory branchiae lacking. Notopodial postsetal lamellae ventrally elongated, overlapping enlarged postsetal neuropodial lamellae (Fig. 3 g, h); posterior notopodial presetal lamellae dorsally pointed and elongated (Fig. 3 g, i); neuropodial presetal lamellae rounded. Interramal channel between notopodial and neuropodial lamellae with lateral ciliated organs from about setiger 30 (Fig. 3 g–i).

Notopodial setae all capillaries; setae of setiger 1 thin and longer than those of subsequent setigers (Fig. 3 c); thereafter, setae alternately stout widely sheathed, heavily reticulated and granulated capillaries (Fig. 3 j) and slender capillaries lacking granulations; separate group of longer, thinner capillaries present dorsal to setal row. Anterior neuropodial setae similar to notopodial setae (Fig. 3 e). Neuropodial hooded hooks from setiger 29 (setigers 27–33 in paratypes), numbering up to four per fascicle, accompanied by narrow capillaries throughout; hooks unidentate with blunt tips (Fig. 3 k). Ventral sabre setae present from setiger 2, numbering one or two per fascicle; each elongate, curved, widely limbate, heavily reticulated and granulated (Fig. 3 l).

Pygidium unknown.

*Remarks.* *Dispio oculata* is similar to *D. magna* (DAY, 1955) from South Africa and *D. brachychaeta* BLAKE, 1983 from Argentina in that the branchiae are completely fused to the notopodial postsetal lamellae anteriorly but are free posteriorly. In *D. magna*, however, the prostomium is fusiform and lacks eyes, the first branchiae are essentially similar in length to the succeeding ones and the accessory branchiae are present as minute lamellae on neuropodia from about setiger 35 onwards. *D. oculata* is most similar to *D. brachychaeta* in that the first branchiae are about half as long as those of subsequent setigers, there are no accessory branchiae on the parapodia, hooded hooks begin from setiger 32 and lateral ciliated organs are present in interrampal channels between the notopodial and neuropodial lamellae. However, *D. oculata* differs from *D. brachychaeta* in that (1) the caruncle of *D. oculata* is distinct and extends to the posterior margin of setiger 1, rather than being indistinct (2) four eyes are present, rather than lacking, (3) the fused anterior notopo-

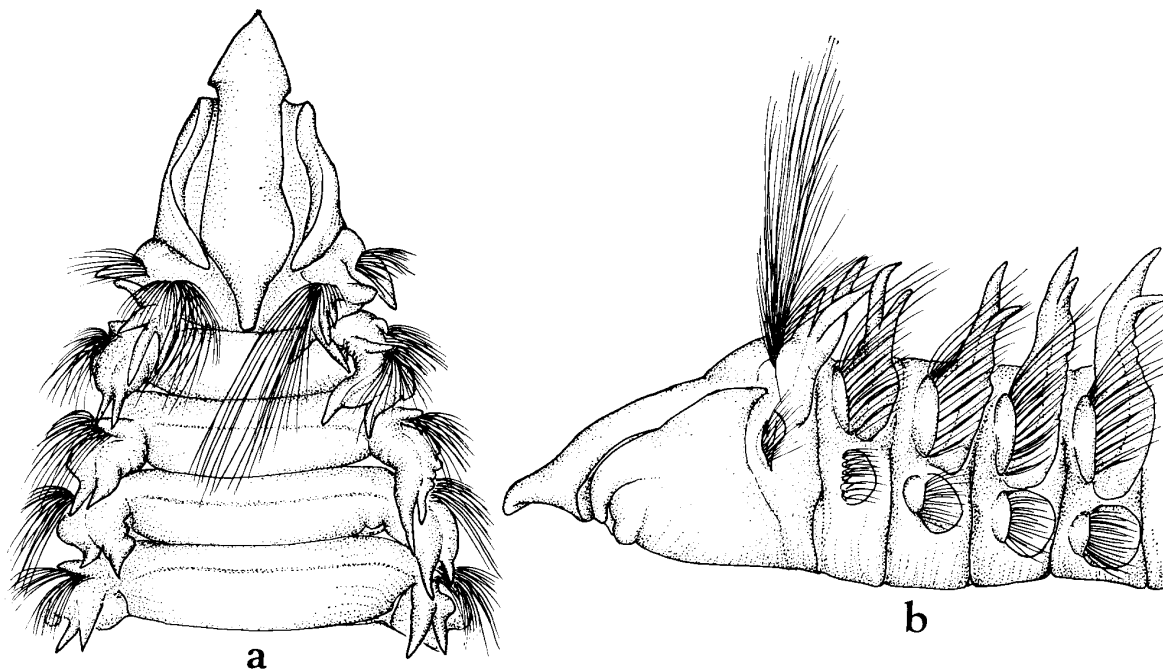


Fig. 4. *Dispio uncinata* HARTMAN. — a, Anterior end, dorsal view,  $\times 36$ ; b, same, lateral view,  $\times 36$ .

dial postsetal lamellae and branchiae form strap-like structures with blunt rather than pointed tips, and (4) the sabre setae number one or two rather than 4–6 per fascicle, and are well developed posteriorly.

*Type-series.* Holotype, NSMT-Pol. H 324; 5 paratypes, NSMT-Pol. P 325.

*Distribution.* Japan; 5 m.

### *Dispio uncinata* HARTMAN, 1951

(Figs. 4 a, b, 5 a–m)

*Dispio uncinata* HARTMAN, 1951, pp. 87–90, pl. 22, figs. 1–5, pl. 23, figs. 1–4; 1961, pp. 88–89; FOSTER, 1971, pp. 73–79, figs. 161–174; LIGHT, 1978, pp. 113–116, figs. 113, 115.

*Material examined.* Off Nii-jima,  $34^{\circ}23.5'N$ ,  $139^{\circ}14.5'E$ – $34^{\circ}23.8'N$ ,  $139^{\circ}14.7'E$ , in 82–92 m (1), VII–1977. Off Odawara, Sagami Bay, in 30 m (1), IX–1978.

*Description.* All specimens missing posterior end, largest one measuring 14 mm in length and 1.8 mm in width including parapodia for 50 setigers.

Prostomium fusiform, tapered anteriorly and posteriorly, with posterior raised caruncle ending on posterior margin of setiger 1; eyes not visible. Peristomium separated from setiger 1, forming lateral wings (Fig. 4 a, b).

Branchiae present from setiger 1, continuing posteriorly; branchiae fused basally to notopodial postsetal lamellae, branchial tips free throughout, distally pointed (Fig. 4 a, b, 5 a–e).

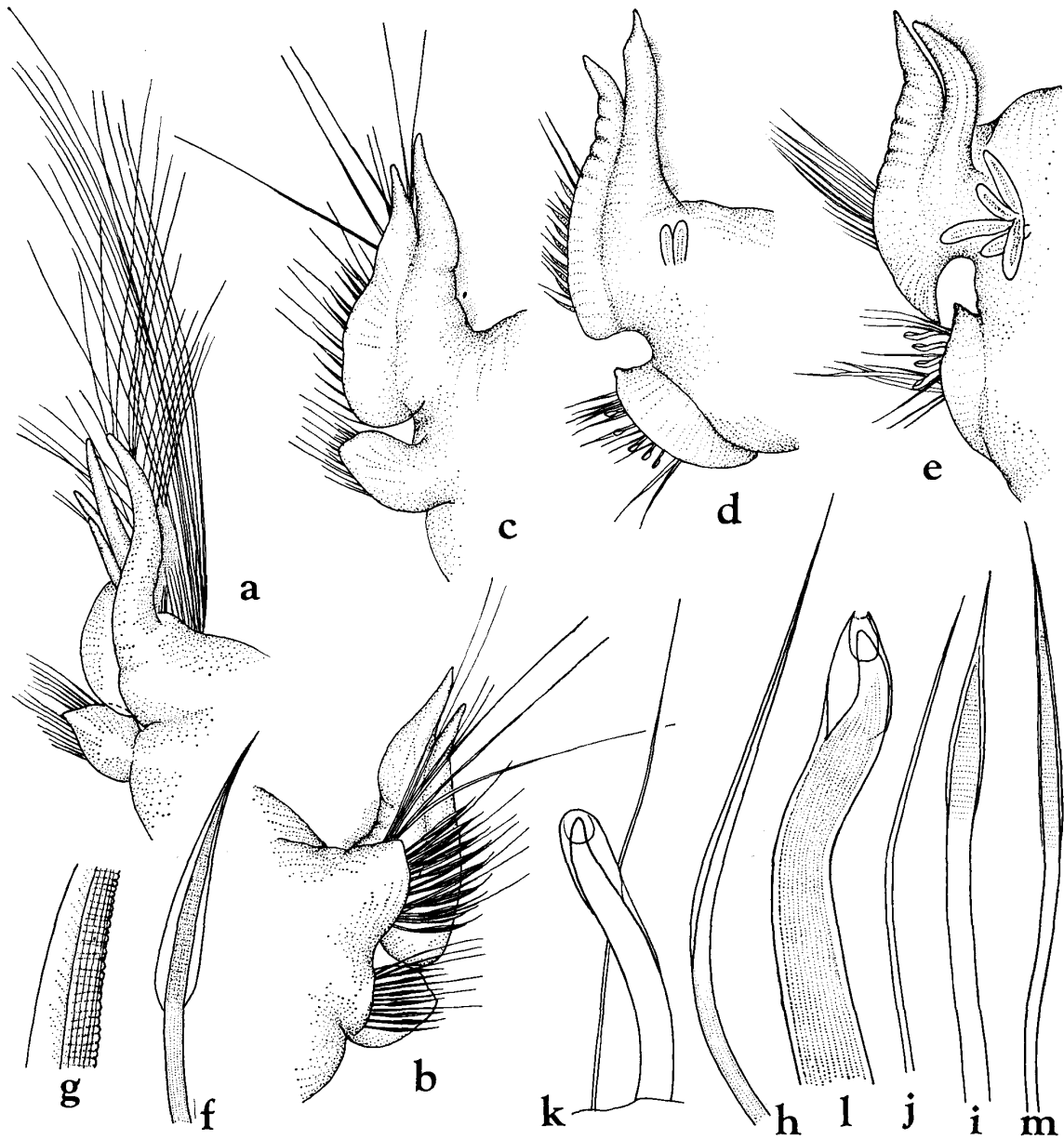


Fig. 5. *Dispio uncinata* HARTMAN. — a, Setiger 1, posterior view,  $\times 58$ ; b, setiger 2, anterior view,  $\times 58$ ; c, same, posterior view,  $\times 58$ ; d, setiger 20, posterior view,  $\times 47$ ; e, setiger 40, posterior view,  $\times 58$ ; f, notopodial seta in anterior row of setiger 2,  $\times 240$ ; g, part of same seta,  $\times 638$ ; h, notopodial seta in posterior row of setiger 2,  $\times 240$ ; i, j, notopodial setae of posterior setiger,  $\times 180$ ; k, hooded hook and companion seta of 20th neuropodium,  $\times 353$ ; l, hooded hook of 40th neuropodium,  $\times 353$ ; m, sabre seta of 20th neuropodium,  $\times 180$ .

Setiger 1 only slightly smaller than succeeding ones; notopodial postsetal lamellae with three digitiform lobes along free edges; neuropodial postsetal lamellae triangular with pointed tip (Fig. 5 a). Notopodial postsetal lamellae of setiger 2 and succeeding setigers entire, fused with branchiae, lamellae distally free with pointed



tips (Fig. 5 b, c). Neuropodial postsetal lamellae becoming lower, dorsally pointed and elongated more posteriorly (Fig. 5 d, e); presetal lamellae low, rounded. Accessory branchiae appearing on posterior side of 10th notopodia as small lobe, increasing in number thereafter, with up to five lobes in 40th notopodia (Fig. 5 d, e).

Notopodial setae of setiger 1 with very long, thin capillaries (Fig. 5 a); notopodial setae on succeeding setigers arranged in two rows, setae of anterior row with wide sheaths and reticulated, granulated shafts (Fig. 5 f, g); setae of posterior row longer than those of anterior row, with sheath but lacking granulations (Fig. 5 h); separate group of long, narrowly sheathed capillaries present dorsal to anterior row (Fig. 5 b). Posterior notopodial setae narrowly sheathed capillaries with granulations (Fig. 5 i) and thin capillaries (Fig. 5 j). Anterior neuropodial setae similar to notopodial setae with widely sheathed capillaries in anterior row and thin capillaries in posterior row. Neuropodial hooded hooks from setiger 18, numbering up to five per fascicle, accompanied by narrow capillaries throughout (Fig. 5 k); hooks all unidentate, becoming thicker posteriorly than anterior ones (Fig. 5 l). Ventral sabre setae present from setiger 10, numbering one or two per fascicle; each heavily granulated (Fig. 5 m).

*Remarks.* The specimens examined have a small number of lobes on the anterior notopodial lamellae compared with specimens previously described by HARTMAN (1951) and FOSTER (1971). In particular, the anterior neuropodial postsetal lamellae have no lobes.

The species is new to the Japanese fauna.

*Distribution.* Gulf of Mexico; Massachusetts to Florida; Caribbean; California; Japan; intertidal to 92 m.

### Literature Cited

- BLAKE, J. A., 1983. Polychaetes of the family Spionidae from South America, Antarctica, and adjacent seas and islands. In KORNICKER, L. (ed.), *Biology of the Antarctic Seas XIV. Antarct. Res. Ser., (Am. Geophys. U.),* **39**: 205–287.
- DAY, J. H., 1955. The Polychaeta of South Africa. Part 3. Sedentary species from Cape shores and estuaries. *J. Linn. Soc. (Zool.),* **42**: 407–452.
- FOSTER, N. M., 1971. Spionidae (Polychaeta) of the Gulf of Mexico and the Caribbean Sea. *Stud. Fauna Curacao,* **36**: 1–183.
- HARTMAN, O., 1951. The littoral marine annelids of the Gulf of Mexico. *Publ. Inst. Mar. Sci.,* **2**: 7–124.
- 1961. Polychaetous annelids from California. *Allan Hancock Pacif. Exped.,* **25**: 1–226.
- LIGHT, W. J., 1978. *Invertebrates of the San Francisco Bay estuary system.* Spionidae (Polychaeta, Annelida). The Boxwood Press, Pacific Grove, Ca., 211 pp.
- WEBSTER, H. E., 1879. The Annelida Chaetopoda of New Jersey. *Ann. Rep. N. Y. State Mus. Nat. Hist.,* **32**: 101–128.